Release notes for ENDF/B Development n-048_Cd_108 evaluation

April 26, 2017

- `psyche` Warnings:
  1. Strength function in URR not in agreement with PSYCHE's expectations
     FILE 2 / SECTION 151 / ENERGY = 6.00000E+03. STRENGTH FUNCTION IS 1.44000E-04 / STRENGTH FUNCTION 1.44000E-04 / LIES OUTSIDE LIMITS 1.00000E-05 TO 1.00000E-04 (0): URR str. ftn.

```
FILE  2
   SECTION 151
         ENERGY =  6.00000E+03. STRENGTH FUNCTION IS  1.44000E-04
                       STRENGTH FUNCTION 1.44000E-04
                                          LIES OUTSIDE LIMITS 1.00000E-05 TO 1.00000E-04
... [8 more lines]
```

- `recent` Warnings:
  1. Statistical weight of certain L values were incorrect
     0: RRR goof (a)

```
 Calculate Cross Sections from Resonance Parameters (RECENT 2015-1)
 ============================================================================
 Retrieval Criteria-----------        MAT
 File 2 Mimimum Cross Section- 1.0000E-10 (Standard Option)
 Reactions with No Background-     Output (Resonance Contribution)
... [346 more lines]
```

- `groupie` Errors:
  1. Very small elastic cross section found
     0: Small elastic

```
 Multi-Group and Multi-Band Parameters from ENDF/B Data (GROUPIE 2015-2)
 ----------------------------------------------------------------------------
 ENDF/B Input and Output Data Filenames
 ENDFB.IN
 ENDFB.OUT
... [97 more lines]
```

- `fudge-4.0` Errors:
  1. Calculated and tabulated Q values disagree.
     reaction label 12: n[multiplicity:'2'] + Cd107 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -10559558.68315125 eV vs -1.0334e7 eV!
```

  2. Calculated and tabulated Q values disagree.
     reaction label 13: n[multiplicity:'3'] + Cd106 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -18483217.53926086 eV vs -1.8261e7 eV!
```

  3. Calculated and tabulated Q values disagree.
     reaction label 14: n + H1 + Ag107 (Error # 0): Q mismatch

```
WARNING: Calculated and tabulated Q-values disagree: -8360308.997543335 eV vs -8140604. eV!
```

4. Calculated and tabulated Q values disagree.
   reaction label 15: n + H2 + Ag106 (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -15671463.04882812 eV vs -1.5457e7 eV!
   ```

5. Calculated and tabulated Q values disagree.
   reaction label 16: n + H3 + Ag105 (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -17354896.18264771 eV vs -1.7131e7 eV!
   ```

6. Calculated and tabulated Q values disagree.
   reaction label 17: Cd109 + gamma (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: 7106660.441329956 eV vs 7330004. eV!
   ```

7. Calculated and tabulated Q values disagree.
   reaction label 18: n + He4 + Pd104 (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -2507951.807434082 eV vs -2276002. eV!
   ```

8. Calculated and tabulated Q values disagree.
   reaction label 19: H1 + Ag108_s (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -1088899.040023804 eV vs -866000.3 eV!
   ```

9. Calculated and tabulated Q values disagree.
   reaction label 20: H2 + Ag107_s (Error # 0): Q mismatch

   ```
   WARNING: Calculated and tabulated Q-values disagree: -6135742.896606445 eV vs -5912202. eV!
   ```

10. Calculated and tabulated Q values disagree.
    reaction label 21: H3 + Ag106_s (Error # 0): Q mismatch

    ```
    WARNING: Calculated and tabulated Q-values disagree: -9414230.108215332 eV vs -9201804. eV!
    ```

11. Calculated and tabulated Q values disagree.
    reaction label 22: He3 + Pd106_s (Error # 0): Q mismatch

    ```
    WARNING: Calculated and tabulated Q-values disagree: -6430501.417007446 eV vs -6198602. eV!
    ```

12. Calculated and tabulated Q values disagree.
    reaction label 23: He4 + Pd105_s (Error # 0): Q mismatch

    ```
    WARNING: Calculated and tabulated Q-values disagree: 4586148.258239746 eV vs 4863002. eV!
    ```

- `njoy2012` Warnings:

  1. Message comes from several resonance types that do not support the calculation of angular distributions. Some of them can be used if `Want_SAMRL_RM or Want_SAMRML_BW are true.`
     reconr...reconstruct pointwise cross sections in pendf format (0): RECONR/calculation of angular distribution not installed (0)

     ```
     ---message from rdf2bw---calculation of angular distribution not installed.
       samm max legendre order:  0
     ```

2. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (0): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 16
                          only mf4/mf5 provided
```

3. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (1): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 17
                          only mf4/mf5 provided
```

4. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (2): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 22
                          only mf4/mf5 provided
```

5. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (3): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 28
                          only mf4/mf5 provided
```

6. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (4): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 32
                          only mf4/mf5 provided
```

7. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (5): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 33
                          only mf4/mf5 provided
```

8. With the advent of the ENDF-6 format, it is possible to make evaluations that fully describe all the products of a nuclear reaction. Some carry-over evaluations from earlier ENDF/B versions also have this capability, but many do not. This message is intended to goad evaluators to improve things!
groupr...compute self-shielded group-averaged cross-sections (6): GROUPR/conver (0)

```
 ---message from conver---cannot do complete particle production for mt= 91
                          only mf4/mf5 provided
```